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EDUCATIONAL BACKGROUND:

B.A. in Economics, California State University, Northridge, 1976

Ph.D. in Economics, University of California at San Diego, 1980

CURRENT POSITIONS/AFFILIATIONS:

Professor of Economics and Public Affairs, Princeton University, 1995-2005, Howard Harrison and Gabrielle Snyder Beck Professor of Economics and Public Affairs, 2006-present.

Research Associate, National Bureau of Economic Research, 1988-present.

Consultant, Federal Reserve Bank of Richmond, 1996-2009, 2013-present.

PREVIOUS POSITIONS/AFFILIATIONS:

Professor of Economics, Northwestern University, 1989-1995.

Visiting Associate Professor of Economics, University of Chicago, 1989-1990.

Associate Professor of Economics, Northwestern University, 1986-1989.

Associate Professor of Economics, Harvard University, 1984-1986.

Assistant Professor of Economics, Harvard University, 1980-1984.

Consultant, Federal Reserve Bank of Chicago, 1990-1995.

Faculty Research Fellow, National Bureau of Economic Research, 1986-1988.

Associate Editor, *American Economic Association Journal, Macroeconomics*, 2007-2008.

Associate Editor, *Journal of Economic Literature*, 2004-2008.

Associate Editor of *Econometrica*, 1989-1995.

Associate Editor of the *Journal of Monetary Economics*, 1989-1995.

Associate Editor of *Journal of Business and Economic Statistics*, 1991-1995.

Associate Editor of the *Journal of Applied Econometrics*, 1987-1988, 1995-1998.

Associate Editor of the *Journal of the American Statistical Association*, 1986-1988.

Co-Editor, *The Review of Economics and Statistics*, 2008-2010; Chair, 2011-2014.

Co-Editor, *Journal of Business and Economic Statistics*, 1995-1997.

Co-Editor of the *Journal of Applied Econometrics*, 1988-1995.

Editorial Board Member, *Advanced Texts in Econometrics*, Oxford University Press, 2002-2010.

Advisory Board Member, *The Review of Economic Statistics*, 2019-present.

Advisory Board Member, *Journal of Monetary Economics*, 1995-2008.

Advisory Editor, *Macroeconomic Dynamics*, 2002-present.

Director, International Association of Applied Econometrics, 2016-2019.

FELLOWSHIPS, GRANTS AND HONORS

Regents Fellowship, UC San Diego, 1976, 1979-1980.

Harvard Graduate Society Research Grant 1981-1983.

Clark Fund Research Grant 1982-1986.
National Science Foundation Research Grants 1982-2009.
Honorable Mention, Galbraith Award for Graduate Teaching 1983, 1985.
Galbraith Award for Graduate Teaching 1986.
National Bureau of Economic Research Grant (Leading Indicators), 1987-2004.
Fellow of the Econometric Society, 1993-present.
Fellow of the American Academy of Arts and Sciences, 2005-present.
Honorary Doctorate (Honoris Causa), University of Bern, 2005.
Graduate Mentoring Award, Princeton University, 2008.
Isaac Kerstenstzky Scholarly Achievement Award (CIRET/FGV), 2010.
Fellow of the International Institute of Forecasters, 2017.
Richard E. Quandt Undergraduate Teaching Prize, 2017.
Fellow of the International Association of Applied Econometrics, 2018-present.
Harvey S. Rosen Undergraduate Advising Prize, 2020.
Fellow of the Journal of Econometrics, 2021-present.

ADMINISTRATIVE POSITIONS (PRINCETON UNIVERSITY):

Acting Chair, Department of Economics, 2000-01, 2011-12.
Associate Chair, Department of Economics, 2002-04, 2012-13.
Acting Associate Dean, Woodrow Wilson School, 2008.
Acting/Interim Dean, Woodrow Wilson School/Princeton School of Public and International Affairs, 2009, 2020, 2021.

PUBLICATIONS

BOOKS:

1. *Business Cycles, Indicators, and Forecasting*, edited by James H. Stock and Mark W. Watson, University of Chicago Press for the NBER, 1993.
2. *The Collected Works of C.W.J. Granger*, edited by Eric Ghysels, Norman Swanson and Mark W. Watson, Cambridge University Press, 2001.
3. *Introduction to Econometrics*, with James Stock, Addison-Wesley, 2003. Second Edition, 2007. Third Edition, 2010. Third Updated Edition, 2015. Fourth Edition, 2019. *Brief* Edition, 2008.
4. *Volatility and Time Series Econometrics: Essays in Honor of Robert F. Engle*, edited by Tim Bollerslev, Jeffrey R. Russell, and Mark W. Watson, Oxford University Press, 2010.

JOURNAL ARTICLES:

1. A One-Factor Multivariate Time Series Model of Metropolitan Wage Rates (with R.F. Engle), *Journal of the American Statistical Association*, Vol. 76, No. 376, 1981, pp. 774-781.
2. Alternative Algorithms for Estimation of Dynamic MIMIC, Factor, and Time Varying Coefficient Regression Models (with R.F. Engle), *Journal of Econometrics*, Vol. 23, pp. 385-400.

3. Testing the Interpretation of Indices in a Macroeconomic Index Model (with D. F. Kraft), *Journal of Monetary Economics*, Vol. 13, No. 2, 1984, pp. 165-182.
4. A DYMIMIC Model of Housing Price Determination (with R.F. Engle and D.M. Lilien), *Journal of Econometrics*, Vol. 28, pp. 307-326.
5. Testing for Regression Coefficient Stability with a Stationary AR(1) Alternative (with R.F. Engle), *Review of Economics and Statistics*, Vol. LXVII, 1985, 341-345.
6. Bank Rate Policy Under the Interwar Gold Standard: A Dynamic Probit Model (with B.J. Eichengreen and R. Grossman), *The Economic Journal*, Vol. 95 (September 1985), pp. 725-745.
7. Errors-in-Variables and Seasonal Adjustment Procedures (with J.A. Hausman), *Journal of the American Statistical Association*, September 1985, Vol. 80, pp. 531-540.
8. Uncertainty in Model Based Seasonal Adjustment Procedures and Construction of Minimax Filters, *Journal of the American Statistical Association*, Vol. 82, Number 398, pp. 395-408.
9. Forecasting Commercial Electricity Sales (with L.M. Pastuszek and E. Cody), *Journal of Forecasting*, Vol. 6, Number 2, April-June 1987 pp. 117-136.
10. Recursive Solution Methods for Dynamic Linear Rational Expectations Models, *Journal of Econometrics*, May 1989, Vol. 41, pp. 65-91.
11. Univariate Detrending with Stochastic Trends, *Journal of Monetary Economics*, June 1986, Vol. 18, pp. 49-75.
12. Testing For Common Trends (with J.H. Stock), *Journal of the American Statistical Association*, December 1988, 83, pp. 1097-1107. (Reprinted in *Long-Run Economic Relationships*, Readings in Cointegration, edited by R.F. Engle and C.W.J. Granger, Oxford University Press.)
13. Inference in Linear Time Series Models with Some Unit Roots (with C.A. Sims and J.H. Stock), *Econometrica*, Vol. 58, No. 1. (Reprinted in *Time Series*, edited by Andrew Harvey, Edgar Elgar Publishing.
14. Interpreting the Evidence on Money-Income Causation (with J.H. Stock), *Journal of Econometrics*, Vol. 40, Number 1, pp. 161-182.
15. Stochastic Trends and Economic Fluctuations (with Robert King, Charles Plosser, and James Stock), *American Economic Review*, Vol. 81, No. 4, (September 1991), pp. 819-40.
16. Variable Trends and Economic Fluctuations (with J.H. Stock), *Journal of Economic Perspectives*, Summer 1988, pp. 147-174. (Reprinted in *Long-Run Economic Relationships*, Readings in Cointegration, edited by R.F. Engle and C.W.J. Granger, Oxford University Press.)
17. The Convergence of Multivariate "Unit Root" Distributions to their Asymptotic Limits: The Case of Money-Income Causality (with L.Ljungqvist, M. Park, J.H. Stock), *Journal of Economic Dynamics and Control*, 12, pp. 489-502.

18. A Simple Estimator of Cointegrating Vectors in Higher Order Integrated Systems (with James H. Stock), *Econometrica*, Vol. 61, No. 4 (July 1993), pp. 783-820.
19. Measures of Fit for Calibrated Models, *Journal of Political Economy*, Vol. 101, No. 6, 1993, pp. 1011-1041.
20. Business Cycle Durations and Postwar Stabilization of the U.S. Economy, *American Economic Review*, March 1994.
21. Testing for Cointegration When Some of the Cointegrating Vectors are Prespecified, (with M.T.K. Horvath), *Econometric Theory*, Vol. 11, No. 5 (December 1995), pp. 952-984.
22. Money, Prices, Interest Rates and the Business Cycle (with Robert King), *Review of Economics and Statistics*, Vol. LXXVIII, Number 1, (February 1996), pp. 35-53. (Expanded version available as Federal Reserve Bank of Chicago, Working Paper WP-95-10, July 1995.)
23. Estimating Deterministic Trends in the Presence of Serially Correlated Errors, (with Eugene Canjels), *Review of Economics and Statistics*, 1997, pp. 184-200.
24. Evidence on Structural Instability in Macroeconomic Time Series Relations, (with James H. Stock), *Journal of Business and Economic Statistics*. Vol. 14, No. 1, (January 1996) pp. 11-30.
25. The NAIRU, Unemployment, and Monetary Policy, (with Douglas Staiger and James Stock), *Journal of Economic Perspectives*, Winter 1997.
26. Asymptotically Median Unbiased Estimation of Coefficient Variance in a Time Varying Parameter Model, (with James Stock), *Journal of the American Statistical Association*, Vol. 93, No. 441, March 1998, pp. 349-358.
27. The Solution of Singular Linear Difference Systems Under Rational Expectations, (with Robert King), *International Economic Review*, 39(4), November 1998, 1015-26.
28. A Dynamic Factor Model Framework for Forecast Combination (with Y.L. Chan and J.S. Stock), *Spanish Economic Review*, 1, 1999, pp. 91-121
29. Forecasting Inflation (with James H. Stock), *Journal of Monetary Economics*, 1999, Vol. 44, no. 2.
30. Vector Autoregressions (with James H. Stock), *Journal of Economic Perspectives*, Fall 2001, Vol. 15, No. 4, 101-116.
31. Macroeconomic Forecasting Using Diffusion Indexes (with James H. Stock), *Journal of Business and Economic Statistics*, April 2002, Vol. 20 No. 2, 147-162.
32. Macroeconomic Forecasting in the Euro Area: Country Specific versus Area-Wide Information (with Massimiliano Marcellino and James H. Stock), *European Economic Review*, Volume 47, Issue 1, February 2003, pages 1-18.

33. System Reduction and Solution Algorithms for Singular Linear Difference Systems under Rational Expectations (with Robert G. King), *Computational Economics*, (October 2002), 20, pp. 57-86.
34. Forecasting Using Principal Components from a Large Number of Predictors (with J.H. Stock), *Journal of the American Statistical Association*, 2002.
35. Forecasting Output and Inflation: The Role of Asset Prices, (with James H. Stock), *Journal of Economic Literature*, 2003.
36. Combination Forecasts Of Output Growth In A Seven-Country Data Set, (with James Stock), *Journal of Forecasting*, 2004, 23(6), pp 405-430.
37. Understanding Changes in International Business Cycle Dynamics, (with James Stock), *Journal of the European Economic Association*, September 2005.
38. A Comparison of Direct and Iterated Multistep AR Methods for Forecasting Macroeconomic Time Series (with Massimiliano Marcellino and James Stock), *Journal of Econometrics*, 2006, vol. 135, pp. 499-526.
39. Consistent Estimation of the Number of Dynamic Factors in a Large N and T Panel (with Dante Amengual), *Journal of Business and Economic Statistics*, 2007 (January).
40. Why Has Inflation Become Harder to Forecast? (with James Stock), *Journal of Money, Credit and Banking*, 2007, Vol. 39, Number 1, pp. 3-34; Erratum, *Journal of Money, Credit and Banking*, 2007, Vol. 39, Number 7, pp. 1849.
41. A, B, C's and (D)'s For Understanding VARS (with Jesus Fernandez-Villaverde, Juan F. Rubio-Ramirez, and Thomas J. Sargent), *American Economic Review*, 2007 (June), Vol. 97, Number 3, pp. 1021-1026.
42. Heteroskedasticity-Robust Standard Errors for Fixed Effect Panel Data Regression (with James H. Stock), *Econometrica*, Vol. 76, No. 1 (January, 2008), pp. 155-174.
43. Testing Models of Low-Frequency Variability (with Ulrich Müller), *Econometrica*, Vol. 76, No. 5 (September, 2008), 979–1016.
44. Indicators for Dating Business Cycles: Cross-History Selection and Comparisons (with James H. Stock), *American Economic Review*, Vol. 100, No. 2, May 2010, pp 16-19.
45. Relative Goods' Prices and Pure Inflation (with Ricardo Reis), *American Economic Journal Macroeconomics*, 2 (3), (July 2010.), 128-157.
46. Sectoral vs. Aggregate Shocks: A Structural Factor Analysis of Industrial Production (with Andrew Foerster and Pierre-Daniel Sarte), *Journal of Political Economy*, 2011 (January), pp 1-38.
47. Generalized Shrinkage Methods for Forecasting Using Many Predictors (with James H. Stock), *Journal of Business and Economic Statistics*, 2012 (October), Vol. 30, No. 4, 481-493.

48. Inflation and Unit Labor Cost (with Robert G. King), *Journal of Money, Banking, and Credit*, Vol. 44, No. 2, 2012 (December), pp. 111-149.
49. Low-Frequency Robust Cointegration Testing (with Ulrich Müller), *Journal of Econometrics*, 177 (2013), pp 66-81.
50. Consistent Factor Estimation in Dynamic Factor Models with Structural Instability (with Brandon J. Bates, Mikkel Plagborg-Møller, and James H. Stock), *Journal of Econometrics*, (2013), 177, pp 289-304.
51. Estimating Turning Points Using Large Data Sets (with James H. Stock), *Journal of Econometrics*, (2014), 178, pp 368-381.
52. Inflation Persistence, the NAIRU, and the Great Recession, *American Economic Review*, Vol. 104, No. 5, May 2014, pp 31-36.
53. Nearly Optimal Tests When a Nuisance Parameter is Present Under the Null Hypothesis (with Graham Elliott and Ulrich Müller), *Econometrica*, Vol. 83, Issue 2, March 2015, pp. 771-811.
54. Presidents and the Economy: A Econometric Investigation (with Alan Blinder), *American Economic Review*, Vol. 106, No. 4, April 2016: pp. 1015-1045.
55. Core and Trend Inflation (with James H. Stock), *Review of Economics and Statistics*, 98(4), October 2016: pp. 770-784.
56. Measuring Uncertainty about Long-Run Predictions (with Ulrich Müller), *Review of Economic Studies*, 83 (4), October 2016, pp. 1711-1740.
57. Twenty Years of Time Series Econometrics in Ten Pictures (with James Stock), *Journal of Economic Perspectives*, Vol. 31, No. 2, Spring 2017, pp. 59-86.
58. Long-Run Covariability (with Ulrich Müller), *Econometrica*, Vol. 86, No. 3, May 2018, pp. 775-804.
59. Identification and Estimation of Dynamic Causal Effects (with James Stock), *Economic Journal*, Vol. 128, Issue 610, May 2018, pp. 917-948.
60. HAR Inference: Recommendations for Practice (with Eben Lazarus, Daniel J. Lewis and James Stock), *Journal of Business and Economic Statistics*, October 2018, Vol. 36, No. 4, pp. 541-559.
61. Slack and Cyclically Sensitive Inflation (with James H. Stock), *Journal of Money, Credit and Banking*, Volume 52, S2, December 2020, pp. 393-428.
62. Inference in SVARs Identified with External Instruments (with Jose L. Montiel Olea and James H. Stock), *Journal of Econometrics*, 225(1), November 2021, 74-87.
63. An Econometric Model of International Long-run Growth Dynamics for Long-horizon Forecasting (with Ulrich Müller and James Stock), *Review of Economics and Statistics*, September 2022, 104 (5): 857-876.

64. Comprehensive Evidence Implies a Higher Social Cost of CO₂ (with K. Rennert et al), *Nature*, 2022.
65. Spatial Correlation Robust Inference (with Ulrich Müller), *Econometrica*, November 2022
66. Aggregate Implications of Changing Sectoral Trends (with Andrew Foerster, Andreas Hornstein, and Pierre-Daniel Sarte), *Journal of Political Economy*, December 2022.
67. Spatial Correlation Robust Inference in Linear Regression and Panel Models (with Ulrich Müller), *Journal of Business and Economic Statistics*, Vol. 41, No. 4, pp. 1050-1064.

ARTICLES IN BOOKS AND OTHER PERIODICALS:

1. Formulation Generale et Estimation de Models Multidimensionnels Temporels a Facteurs Explicatifs Non-observables (with R.F. Engle), *Cahiers du Seminaire D'Econometric*, No. 22, 1980, pp. 109 - 125.
2. Bubbles, Rational Expectations, and Financial Markets (with O.J. Blanchard) in *Crisis in the Economic and Financial Structure: Bubbles, Bursts, and Shocks*, Paul Wachtel (editor), Lexington Books, 1982, translated as "Bulles, anticipations rationnelles et marches financiers," *Annales De L'insee*, no. 54, 1984, pp. 79-100.
3. Time Series and Spectral Methods in Econometrics (with C.W.J. Granger), *Handbook of Econometrics*, Vol. 2, Z. Griliches and M. Intriligator (editors), North Holland, 1984, pp. 979-1022.
4. Are Business Cycles All Alike (with O.J. Blanchard), Robert J. Gordon (editor), *The American Business Cycle*, NBER and Chicago Press, 1986.
5. The Kalman Filter: Applications to Forecasting and Rational Expectations Models (with R.F. Engle), in *Advances in Econometrics*, Fifth World Congress, edited by T. Bewley, Cambridge University Press.
6. Sources of Business Cycle Fluctuations (with Matthew D. Shapiro), *NBER Macroeconomics Annual*, Vol. 3, 1988, M.I.T. Press, pp. 111-156.
7. A Probability Model of the Coincident Economic Indicators (with James H. Stock), in *Leading Economic Indicators: New Approaches and Forecasting Records*, edited by K. Lahiri and G. Moore, Cambridge University Press, 1991.
8. New Indexes of Coincident and Leading Economic Indicators (with James H. Stock), *NBER Macroeconomics Annual*, Vol. 4, 1989, M.I.T. Press.
9. The Budgetary Process: Characteristics and Cautions (with Dana Naimark), Chapter 4 in *State and Local Finance for the 1990's: A Case Study of Arizona*, edited by T. McGuire and D. Naimark, Arizona State University Press.
10. General Fund Projections and History, Chapter 20 in *State and Local Finance for the 1990's: A Case Study of Arizona*, edited by T. McGuire and D. Naimark, Arizona State University Press.
11. Seasonal Adjustment of Preliminary Data (with Jerry A. Hausman), *Papers and Proceeding of the American Statistical Association, Business and Economics Section*, 1990.

12. A Procedure for Predicting Recessions with Leading Indicators: Econometric Issues and Recent Experience (with James Stock), in *New Research on Business Cycles, Indicators and Forecasting*, James Stock and Mark Watson (editors), University of Chicago Press, 1993.
13. Using Econometric Models to Predict Recessions, *Economic Perspectives*, (Research Periodical of the Chicago Federal Reserve Bank), September/October, 1991.
14. Forecasting with Leading Indicators: Lessons for the 1990 Recession in the United States (with James Stock), *Konjunktur-Prognoser & Konjunkturpolitik, Ekonomiska Radets Arsbok* 1992, pp. 77-102.
15. Vector Autoregressions and Cointegration, *Handbook of Econometrics*, Vol. 4, Robert F. Engle and Dan McFadden (editors), North Holland.
16. The Post-War U.S. Phillips Curve: A Revisionist Econometric History, (with Robert King), *Carnegie-Rochester Conference on Public Policy*, 1994, Vol. 41, pp. 157-219.
17. Stability of the Unemployment-Inflation Relation, (with Robert King and James Stock), *Economic Perspectives*, (Research Periodical of the Chicago Federal Reserve Bank), 1995.
18. How Precise are Estimates of the Natural Rate of Unemployment, (with Douglas Staiger and James Stock), in C. Romer and D. Romer (eds.), *Reducing Inflation: Motivation and Strategy*, University of Chicago Press.
19. Systematic Monetary Policy and the Effects of Oil Price Shocks, (with Ben S. Bernanke and Mark Gertler), *Brookings Papers on Economic Behavior*, 1997:I.
20. Testing Long Run Neutrality (with Robert King), Federal Reserve Bank of Richmond *Economic Quarterly*, 1997
21. Business Cycle Fluctuations in U.S. Macroeconomic Time Series, (with James Stock), in John Taylor and Michael Woodford (Eds.) *Handbook of Econometrics*, North Holland, 1999.
22. Explaining the Increased Variability in Long Term Interest Rates, Federal Reserve Bank of Richmond *Economic Quarterly*, Winter 2000.
23. A Comparison of Linear and Nonlinear Univariate Models for Forecasting Macroeconomic Time Series, (with James Stock), *Festschrift in Honor of C.W.J. Granger*, R.F.Engle and H. White (eds.), Oxford University Press, 1999.
24. Time Series: Cycles, *International Encyclopedia of the Social and Behavioral Sciences, Statistics Volume*, Stephen E. Fienberg and Joseph B. Kadane, Editors, 2001, Elsevier Science.
25. Macroeconomic Forecasting Using Many Predictors, in M. Dewatripont, L. Hansen and S. Turnovsky (eds.), *Advances in Economics and Econometrics, Theory and Applications*, Eighth World Congress of the Econometric Society, Vol. III, pp. 87-115.

26. Prices, Wages and the U.S. NAIRU in the 1990s (with Douglas Staiger and James H. Stock), *Sustainable Employment*, edited by Alan Krueger and Robert Solow, Russell Sage Foundation, 2002.
27. Has the Business Cycle Changed and Why? (with James H. Stock), *NBER Macroeconomics Annual 2002*, Mark Gertler and Ken Rogoff (eds.), MIT Press.
28. How Did Leading Indicator Forecasts Perform During the 2001 Recession? (with James H. Stock), Federal Reserve Bank of Richmond *Economic Quarterly*, Summer 2003.
29. Has the Business Cycle Changed? Evidence and Explanations, (with James Stock), *Monetary Policy and Uncertainty: Adapting to a Changing Economy*, FRB Kansas City symposium, Jackson Hole, Wyoming, August 28-30, 2003, pp 9-57.
30. Macroeconomic Forecasting Using Many Predictors (with James H. Stock), *Handbook of Economic Forecasting*, Graham Elliott, Clive Granger, Allan Timmerman (eds.), North Holland, 2006.
31. How Accurate are Real-Time Estimates of Output Trends and Gaps?, Federal Reserve Bank of Richmond *Economic Quarterly*, Spring 2007.
32. Cointegration, entry for *The New Palgrave Dictionary*, 2nd edition, edited by Lawrence Blume and Steven Durlauf.
33. Macroeconomic Forecasting, entry for *The New Palgrave Dictionary*, 2nd edition, edited by Lawrence Blume and Steven Durlauf.
34. *Understanding the Evolving the Evolving Inflation Process*. (with Stephen G. Cecchetti, Peter Hooper, Bruce C. Kasman, and Kermit L. Schoenholtz). U.S. Monetary Policy Forum Report No. 1, Rosenberg Institute for Global Finance, Brandeis International Business School and Initiative on Global Financial Markets, University of Chicago Graduate School of Business, 2007.
35. Forecasting in Dynamic Factor Models Subject to Structural Instability (with James H. Stock), in *The Methodology and Practice of Econometrics, A Festschrift in Honour of Professor David F. Hendry*, Jennifer Castle and Neil Shephard (eds), 2008, Oxford: Oxford University Press.
36. Phillips Curve Inflation Forecasts (with James H. Stock), in *Understanding Inflation and the Implications for Monetary Policy, a Phillips Curve Retrospective*, Federal Reserve Bank of Boston, 2009.
37. The Evolution of National and Regional Factors in U.S. Housing Construction (with James H. Stock), forthcoming in *Volatility and Time Series Econometrics: Essays in Honour of Robert F. Engle*, Tim Bollerslev, Jeffrey Russell and Mark Watson (eds), 2009, Oxford: Oxford University Press.
38. Financial Conditions Indexes: A Fresh Look after the Financial Crisis (with Jan Hatzius, Peter Hooper, Frederic Mishkin, and Kermit Schoenholtz), U.S. Monetary Policy Forum Report No. 4, Initiative on Global Financial Markets, University of Chicago Graduate School of Business, 2010.
39. Modeling Inflation After the Crisis (with James H. Stock), *Macroeconomic Policy: Post-Crisis and Risks Ahead*, FRB Kansas City symposium, Jackson Hole, Wyoming, August 26-28, 2010.

40. Dynamic Factor Models (with James H. Stock), *Oxford Handbook of Forecasting*, Michael P. Clements and David F. Hendry (eds), 2011, Oxford University Press.
41. Disentangling the Channels of the 2007-2009 Recession (with James Stock), *Brookings Papers on Economic Activity*, Spring 2012, 81-135.
42. Low-Frequency Econometrics (with Ulrich Müller), *Advances in Economics and Econometrics Vol. II*, B. Honore, A. Pakes, M. Piazzesi, and L. Samuelson (eds). Cambridge University Press, 2017.
43. Factor Models and Structural Vector Autoregressions in Macroeconomics (with James Stock), *Handbook of Macroeconomics*, vol. 2A, John B. Taylor and Harald Uhlig (eds), 2016, Chapter 8, pp 415-526.
44. The Disappointing Recovery of Output after 2009 (with John. G. Fernald, Robert E. Hall, and James H. Stock), *Brookings Papers on Economic Activity*, Spring 2017.
45. Trend, Seasonal, and Sectoral Inflation in the Euro Area (with James H. Stock) in *Changing Inflation Dynamics, Evolving Monetary Policy*, Gonzalo Castex, Jordi Gali, and Diego Saravia (eds), Volume 27 of the Book Series on Central Banking, Analysis, and Economic Policies of the Central Bank of Chile, 2020.

NOTES, COMMENTS AND REVIEWS:

1. Imperfect Information and Wage Inertia in the Business Cycle: A Comment, *Journal of Political Economy*, Vol. 91, No. 5, 1983, pp. 876-879.
2. Comment on "Irregular Data Revisions," by A.C. Harvery, C.R. McKenzie, D.P.C. Blake, and M.J. Desai, in *Applied Time Series Analysis of Economic Data*, edited by Arnold Zellner, U.S. Department of the Census, Economic Research Report ER-5
3. Does GNP Have a Unit Root ? (with J.H. Stock), *Economics Letters*, 22, pp. 147-151.
4. Comment on "Vector Autoregressions and Reality," by David Runkle, *Journal of Business and Economic Statistics*, 1987.
5. Comment on "A Reexamination of Friedman's Consumption Puzzle" by James H. Stock, *Journal of Business and Economic Statistics*, 1988.
6. Comment on "Sensitivity Analysis of Seasonal Adjustments: Empirical Case Studies" by J.B. Carlin and A.P. Dempster, *Journal of the American Statistical Association*, March 1989.
7. Review of Time Series Analysis by John Cryer, *Journal of the American Statistical Association*, December 1987, Volume 82, Number 400, 1195.
8. Software Review *Journal of Applied Econometrics*, 4, pp. 205-206.
9. Review of The Collected Works of John W. Tukey, Vols. I, II, and V, edited by D. Brillinger and W.P. Cleveland, *Journal of the American Statistical Association*, 1988.

10. Comment on "Inflation Indicators and Inflation Policy" by Stephen G. Cecchetti, *NBER Macroeconomics Annual*, 1995.
11. Comment on "Is Seasonal Adjustment a Linear or Nonlinear Data Filtering Process," *Journal of Business and Economic Statistics*, Vol. 14, No. 3, July 1996
12. Comment on "On the Fit of a Neoclassical Monetary Model in High Inflation: Israel 1972-1990" by Eckstein and Bental, *Journal of Money, Banking and Credit*, November 1997.
13. Comment on "Assessing Changes in the Monetary Transmission Mechanism: A VAR Approach," by Jean Boivin and Marc Giannone, *Federal Reserve Bank of New York Policy Review*, 8(1), 2002.
14. Comment on "Market Anticipations of Monetary Policy Actions" by William Poole, Robert H. Rasche and Daniel L. Thornton, *Federal Reserve Bank of St. Louis Review*, Jul/Aug 2002, 84(4).
15. Comment on "Monetary Policy in Real Time," by Domenico Giannone, Lucrezia Reichlin, and Luca Sala, *NBER Macroeconomics Annual*, 2004.
16. Comment on "What's Real About the Business Cycle" by James Hamilton, forthcoming *Federal Reserve Bank of St. Louis Review*, 2005.
17. Comment on "Assessing Structural VARs" by L. Christiano, M. Eichenbaum, and R. Vigfusson, *NBER Macroeconomics Annual*, 2006.
18. Comment on "Shocks and Crashes" by M. Lettau and S. Ludvigson, *NBER Macroeconomics Annual*, 2013.
19. Comment on "Trends and Cycles in China's Macroeconomy," by C. Chang, K. Chen, D.F. Waggoner, and T. Zha, *NBER Macroeconomics Annual*, 2015.
20. Comment on "Macroeconomic Effects of Disruptions in Global Food Commodity Markets: Evidence for the United States," by Jasmien De Winne and Gert Peersman, *Brookings Papers on Economic Activity*, Fall 2016.
21. Comment on "On the Empirical (Ir)Relevance of the Zero Lower Bound" by D. Debortoli, J. Gali, and L. Gambetti, *NBER Macroeconomics Annual*, 2019.
22. Comment on "A Reassessment of Monetary Policy Surprises and High-Frequency Identification," by M. Bauer and E. Swanson, *NBER Macroeconomics Annual*, 2022.
23. "Marvin Goodfriend: The Implications of Optimal Prediction Formulae" in *Essays in Honor of Marvin Goodfriend: Economist and Central Banker*, R. G. King and A.L. Wolman (eds), Federal Reserve Bank of Richmond, 2022.

24. “What Does Sectoral Inflation Tell Us About the Aggregate Trend in Inflation?” (with Paul Ho)
Economic Bulletin, Federal Reserve Bank of Richmond, November 2023.

UNPUBLISHED PAPERS:

1. Business Cycle Properties of Selected U.S. Economic Time Series, 1959-1988 (with James H. Stock), NBER WP 3376, 1990.
2. Confidence Sets in Regressions with Highly Serially Correlated Regressors, (with James H. Stock), November 1996.
3. Empirical Bayes Forecasts of One Time Series Using Many Predictors (with Thomas Knox and James H. Stock), September 2000, revised March 2002.
4. Optimal Tests for Reduced Rank Time Variation in Regression Coefficients and Level Variation in the Multivariate Local Level Model (with Piotr Elias and James H. Stock), revised October 2004.
5. Implications of Dynamic Factor Models for VAR Analysis (with James H. Stock), revised June 2005.
6. Measuring Changes in the Value of the Numeraire (with Ricardo Reis), May 2007.
7. Low-Frequency Analysis of Economic Time Series (with Ulrich Müller), revised September 2020.
8. Comovement of Economic Activity During the Covid Recession (with Danila Maroz and James Stock), November 2021.
9. Spatial Unit Roots (with Ulrich Müller), March 2023.
10. Time Varying Extremes (with Ulrich Müller), December 2023.

PROFESSIONAL SERVICE AND MISC:

Program Committee, North American Winter Meetings of the Econometric Society, 1987.
Program Committee, North American Summer Meetings of the Econometric Society, 1988.
Co-Organizer, NBER/NSF Time Series Conference, Chicago II, 1988.
Program Committee, World Congress of the Econometric Society, 1990.
National Science Foundation, Economics Advisory Panel, 1990-1992.
Chair, Program Committee, North American Winter Meetings of the Econometric Soc., 1995.
Fellows Nominating Committee, Econometric Society, 1997.
Business Cycle Indicators Advisory Committee, The Conference Board, 1996-present, (Chair 2010-present)
Program Committee, World Congress of the Econometric Society, 2000.
Co-Organizer NBER/NSF Co-Organizer, NBER/NSF Conference on Forecasting & Empirical Methods in Macroeconomics & Finance, 2001-2012.
Cornell Department of Economics Review Panel, 2001.
Program Committee, Winter Meetings of the Econometric Society, 2002.
Nominating Committee, American Economic Association, 2002.
Sloan Foundation Fellowship Selection Committee in Economics, 2004-2010.

Selection Committee, Robert F. Engle Prize in Financial Econometrics (*Journ. of Fin. Econometrics*), 2005.
Co-Editor (with Kenneth West), June 2005 special issue of the *Journal of Money Credit and Banking*.
Program Committee, Summer Meetings of the Econometric Society, 2006.
U.S. Monetary Policy Forum Panelist, 2007-2011
University of Pennsylvania, Department of Economics Review Panel, 2009.
NBER Business Cycle Dating Committee, 2009-Present.
UC Irvine Department of Economics Review Panel, 2010.
UC Riverside Department of Economics Review Panel, 2011.
Program Co-chair, International Association of Applied Econometrics, 2016.
University of Washington, Department of Economics Review Panel, 2016.